Model Development Phase Template

Date	10 July 2024
Team ID	SWTID1720001058
Project Title	Panic Disorder Detection
Maximum Marks	5 Marks

Feature Selection Report Template

In the forthcoming update, each feature will be accompanied by a brief description. Users will indicate whether it's selected or not, providing reasoning for their decision. This process will streamline decision-making and enhance transparency in feature selection.

Feature	Description	Selected (Yes/No)	Reasoning
Participant ID	This is a unique identifier assigned to each participant in the study or dataset.	No	Non-Predictive Nature: The Participant ID does not contain any information that directly relates to the characteristics or symptoms of Panic Disorder. It is purely a categorical or numerical label used to distinguish between different individuals in the dataset.
Age	Age represents the chronological age of each participant	Yes	Clinical Relevance: Age is often considered a critical demographic factor in studies related to mental health

	in the study or dataset.		disorders, including Panic Disorder. Research suggests that age can influence the onset, prevalence, severity, and response to treatment of Panic Disorder. Younger individuals, for example, might exhibit different symptoms or patterns compared to older adults.
Gender	Gender refers to the categorization of individuals as male, female, or other genders based on social and cultural norms.	**Yes**	Gender is an important demographic variable that can provide valuable insights into health disparities and the effectiveness of interventions across diverse populations. Including gender in research and clinical models helps ensure equity and inclusivity in healthcare practices
Family History	Refers to whether an individual has a family history of Panic Disorder or related mental health conditions.	**No**	Model Interpretation Challenges: Including family history as an input feature may complicate model interpretation. Models aim to identify patterns and relationships between input features and the target variable (Panic Disorder symptoms or diagnosis). Family history may not contribute directly to these patterns in a measurable or actionable way.

Personal History	Refers to an individual's past experiences, including medical history, previous mental health diagnoses, or life events.	**No**	**Temporal Ambiguity**: Personal history, such as past mental health diagnoses or life events, represents historical data that may not necessarily reflect current or ongoing factors contributing to Panic Disorder. Machine learning models typically focus on current and relevant predictors that directly influence the target variable (Panic Disorder symptoms or diagnosis).
Current Stressors	Refers to ongoing life events or circumstances that may contribute to stress or anxiety levels at the time of assessment.	**No**	**Subjectivity and Measurement Challenges**: Assessing and quantifying current stressors can be subjective and challenging. Different individuals may perceive and react to stressors differently, making it difficult to standardize this information across participants in a way that is meaningful for predictive modeling.
Symptoms	Refers to specific manifestations or experiences reported by individuals that are indicative of Panic Disorder.	**Yes**	**Clinical Decision Making**: Symptom-based models can assist clinicians in making informed decisions regarding diagnosis, treatment planning, and monitoring of Panic Disorder. By identifying specific symptom profiles or clusters, models can

			help tailor interventions to individual patient needs.
Severity	Refers to the extent or intensity of Panic Disorder symptoms experienced by an individual	**Yes**	Treatment Planning: Severity of symptoms informs treatment decisions, including the selection of interventions (e.g., medication, therapy) and the monitoring of treatment progress. Models that incorporate severity can help tailor personalized treatment plans based on the individual's symptom profile and severity level.
Impact On Life	Refers to the extent to which Panic Disorder symptoms affect various aspects of an individual's daily functioning activities, relationships, and overall quality of life.	**No**	Subjectivity and Measurement Challenges: Assessing and quantifying the impact of Panic Disorder on life is subjective and can vary significantly between individuals. Different people may perceive and report the impact differently, making it challenging to standardize this information for predictive modeling purposes.
Demographic	Refers to characteristics such as age, gender, race/ethnicity, socioeconomic	**No**	Lack of Direct Causality: Demographic factors are often associated with but do not directly cause Panic Disorder. While they may influence risk factors (e.g., socioeconomic

	status, education level, marital status, and employment status.		status affecting access to healthcare), they do not provide direct insights into the biological or psychological mechanisms underlying the disorder.
Medical History	Refers to a person's past and current medical conditions, treatments, surgeries, and medication use.	**Yes**	**Diagnostic Relevance**: Certain medical conditions or treatments may mimic or contribute to symptoms resembling Panic Disorder, leading to diagnostic challenges. By including medical history, models can distinguish between Panic Disorder and other conditions with similar symptom profiles
Psychiatric History	Refers to an individual's past and current psychiatric diagnoses, treatments, and medications for conditions such as depression, anxiety disorders, substance use disorders, etc.	**No**	**Diagnostic Challenges**: Psychiatric diagnoses can change over time, and symptom severity can vary significantly. Historical psychiatric diagnoses may not accurately reflect current symptomatology or functional impairment relevant to Panic Disorder at the time of model assessment.
Substance Use	Refers to the consumption of substances such as alcohol, tobacco,	**No**	**Data Quality and Reliability**: Substance use data may be subject to underreporting, recall bias, or social

	illicit drugs, or prescription medications not as prescribed.		desirability bias, particularly in clinical and research settings. These factors can affect the reliability and accuracy of substance use information used as input in machine learning models
Coping Mechanism	Refers to the strategies individuals use to manage stress, anxiety, or difficult situations.	**No**	Temporal Variability: Coping mechanisms can change over time and may evolve in response to life events, treatment interventions, or personal growth. Machine learning models typically require stable and consistent input features to generalize patterns and make reliable predictions over time.
Social Support	Refers to the resources, assistance, and emotional backing that individuals perceive or receive from their social networks, including family, friends, and community.	**No**	Temporal Variability: Social support can fluctuate over time due to changes in relationships, life circumstances, or the availability of support networks. Machine learning models typically require stable and consistent input features to generalize patterns and make reliable predictions over time.
LifeStyle Factors	Refers to behaviors, habits, and environmental factors that contribute to an	**Yes**	Health Promotion and Prevention: Promoting healthy lifestyle behaviors can contribute to overall mental health resilience and reduce the risk of

	individual's overall health and well-being. This can include diet, physical activity, sleep patterns, substance use, and stress management techniques.		developing or exacerbating Panic Disorder symptoms. Machine learning models that include lifestyle factors can support efforts in health promotion and prevention strategies.